

Owner's Manual

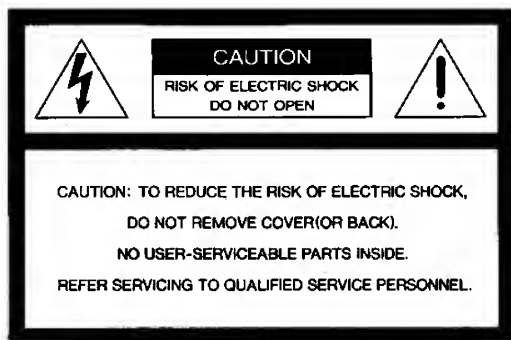
Model

2016

LINE MIXER



Fostex



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

"WARNING"

"TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE."

SAFETY INSTRUCTIONS

1. **Read Instructions** — All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions** — The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** — All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions** — All operating and use instructions should be followed.
5. **Water and Moisture** — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. **Carts and Stands** — The appliance should be used only with a cart or stand that is recommended by the manufacturer.



An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. **Wall or Ceiling Mounting** — The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation** — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. **Heat** — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. **Power Sources** — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. **Grounding or Polarization** — The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
12. **Power Cord Protection** — Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **Cleaning** — The appliance should be cleaned only as recommended by the manufacturer.
14. **Nonuse Periods** — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
15. **Object and Liquid Entry** — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
16. **Damage Requiring Service** — The appliance should be serviced by qualified service personnel when:
 - A. The power supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
17. **Servicing** — The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

TABLE OF CONTENTS

| | |
|------------------------------------------------------------|---|
| SECTION 1. Block Diagram..... | 1 |
| SECTION 2. Names and Functions of The Controls..... | 2 |
| Link Switch | |
| SECTION 3. Basic Application Examples..... | 8 |
| Line and AUX "LINK ON" | |
| Line and AUX "LINK OFF" | |
| Line Only "LINK OFF" | |

| | |
|---------------------------------------------------------------|----|
| SECTION 4. Connecting Examples by Different Modes..... | 11 |
| SECTION 5. Specifications..... | 13 |
| SECTION 6. Trouble Shooting..... | 13 |

SECTION 1. INTRODUCTION

We appreciate your purchase of the Fostex Model 2016 Line Mixer.

Model 2016 is a high performance, multi-function line mixer which will function, either as a 16 IN 2 OUT mixer or two sets of 8 IN 2 OUT mixers by a selector switch.

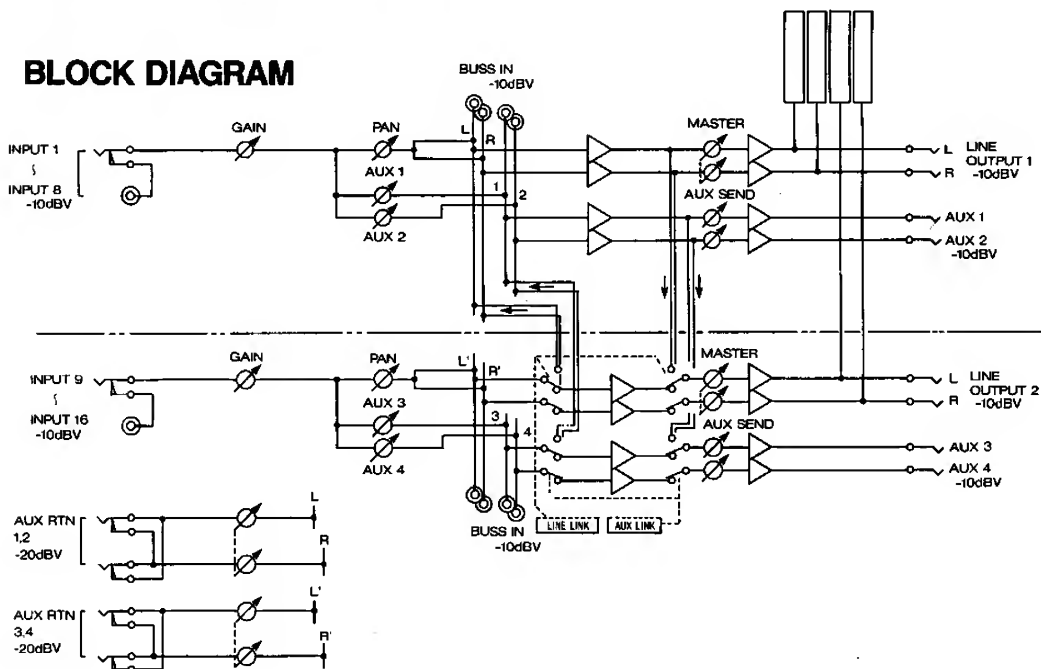
A multiple number of line outputs from a synthesizer, drum machine, MTR, etc. can be stereo mixed and as two sets of AUX send are provided in each channel, not only can it be used as a simple keyboard mixer, it can be used as an MTR mixdown mixer or as an exclusive effects return mixer in a multitrack recording system.

Also, as two sets of AUX return in stereo are provided, two stereo output type effectors can be connected to allow a multitude of effects processing.

In addition, it can flexibly support the many requirements of live stage and multitrack recording as it has AUX 1~4 buss inputs convenient to cascade connections with other mixers, and buss inputs to LINE 1 and LINE 2 which can be used for sub inputs.

It is recommended you read through this manual before operating it to obtain full performance through correct handling in order to enjoy many years of satisfactory performance.

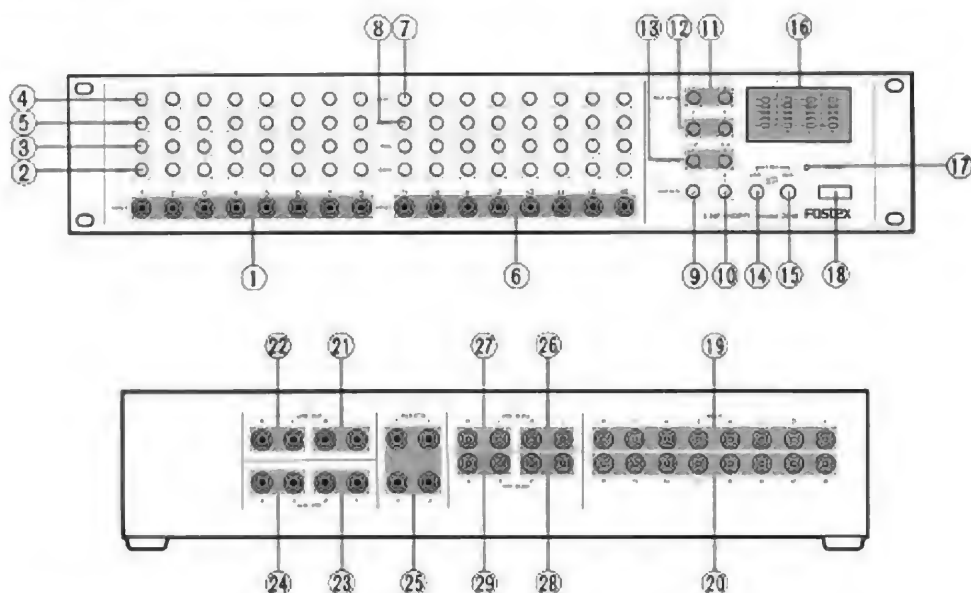
BLOCK DIAGRAM



SECTION 2.

NAMES AND FUNCTIONS OF THE CONTROLS

Expressions in () are same with those in the explanation.



FRONT PANEL

1. Front input jack (INPUT 1-8 (1))

Phone type input jack. Line outputs such as electronic instruments are connected here. (Low level output such as a mic cannot be connected here.) Destination of the signals connected here (LINE OUT 1 (21) and LINE OUT 2 (22)) will differ depending on setting of LINK "LINE" SW (14). Refer to page 4 "LINK SWITCH" for details.

2. GAIN knob (GAIN 1-16 (2))

These control the individual levels of the sound sources connected to, from left to right, INPUT 1-8 (1) and INPUT 9-16 (6).

3. PAN pot (PAN 1-16 (3))

Adjusts sound positioning (L/R sound image balance) of, from left to right, INPUT 1-8 (1) and INPUT 9-16 (6).

4. AUX 1 level knob (AUX 1 (4))

Used mainly for applying an effector to sound sources connected to INPUT 1-8 (1). Amount of effects applied to each sound source is adjusted by this knob. As signals to these AUX are post faders (signals after passing GAIN 1-8 (2)), effects sound level set by this knob will change in parallel with changes of GAIN 1-8 (2).

5. AUX 2 level knob (AUX 2 (5))

Functions the same as AUX 1 (4) (These also, are post faders). In other words, by parallel operation of AUX 1 (4) and this knob, two sets of effects processing are possible on the sound sources connected to INPUT 1-8 (1).

6. Front input jacks (INPUT 9-16 (6))

Same as INPUT 1-8 (1).

7. AUX 3 level knob (AUX 3 (7))

Used mainly for applying the effector to sound sources connected to INPUT 9-16 (6). Amount of effects applied to each sound source is controlled by this knob. As signals to these AUX are post faders (signals after passing GAIN 9-16 (2)), effects sound level set by this knob will change in parallel with changes in GAIN 9-16 (2).

8. AUX 4 level knob (AUX 4 (8))

Functions the same as AUX 3 (7) (These also, are post faders). In other words, by parallel operation of AUX 3 (7) and this knob, two sets of effects processing are possible on the sound sources connected to INPUT 9-16 (6).

9. LINE 1 MASTER level knob (MASTER 1 (9))

Adjusts the master level of the signal output from LINE OUT 1 (21). Levels for L and R will change together at the same level by rotating this knob.

10. LINE 2 MASTER level knob (MASTER 2 (10))

Adjusts the master level of the signal output from LINE OUT 2 (22). Levels for L and R will change together at the same level by rotating this knob.

11. AUX send 1/2 MASTER level knob (AUX SEND 1/2 (11))

Adjusts the master level of the signal output from AUX OUT 1/2 (23) (1 and 2 can be separately adjusted.). In other words, total level of the effects applied from AUX 1 (4) is set by knob 1 and that from AUX 2 (5) by knob 2.

12. AUX send 3/4 MASTER level knob (AUX SEND 3/4 (12))

Adjusts the master level of the signal output from AUX OUT 3/4 (24) (3 and 4 can be separately adjusted.). Total level of the effects applied from AUX 3 (7) and AUX 4 (8) are adjusted by these knobs.

13. AUX return 1-2/3-4 level knob (AUX RTN level 1-2/3-4 (13))

1-2 and 3-4, respectively, adjusts sound volume of the sound source (mainly effector output) connected to AUX RTN jacks 1/2 and 3/4 (25). When knobs 1-2 or 3-4 are rotated, sound sources connected, respectively, to 1 and 2 or 3 and 4 of AUX RTN jack (25) will change at the same level.

14. Link "LINE" switch (LINK "LINE" SW (14))

When this is switched ON (depressed), Model 2016 will function as a 16 IN 2 OUT mixer. At OFF (raised), it functions as two 8 IN 2 OUT mixers. Refer to "LINK SWITCH," page 4 for details.

15. Link "AUX" switch (LINK "AUX" SW (15))

When this is switched ON (depressed), AUX 1 (4) and AUX 3 (7), and AUX 2 (5) and AUX 4 (8) will be combined (For example, the same effects will be applied by AUX 1 (4) and AUX 3 (7) or by AUX 2 (5) and AUX 4 (8).) At OFF (raised), effects can be applied separately by each AUX.

In other words, effects will be in two sets at ON, and in four sets at OFF. Refer to "LINK SWITCH," page 4 for details.

16. LED level meter (METER (16))

L/R levels are indicated for, from left to right, L/R of LINE OUT 1 (21) and L/R of LINE OUT 2 (22).

17. Power LED (POWER (17))

This is lit when power is switched ON.

18. Power switch (POWER SW (18))

Power to Model 2016 is switched ON/OFF. It will be ON when depressed.

REAR PANEL

19. Rear input jacks (INPUT 1~8 (19))

These RCA pin jacks are line inputs common with INPUT 1~8 (1). However, when plugs are connected to the front INPUTS 1~8 (1), they are given priority.

20. Rear input jacks (INPUT 9~16 (20))

These RCA pin jacks are line inputs common with INPUT 9~16 (6). However, when plugs are connected to the front INPUTS 9~16 (6), they are given priority.

21. Line 1 output jack (LINE OUT 1 (21))

Outputs of sound sources and effectors connected to Model 2016 are mixed and output here. As these are line level outputs, a speaker cannot be connected directly (sound is heard by feeding this to a keyboard amplifier or other mixer inputs.)

Content of signals here will differ depending on setting of the LINK "LINE" SW (14). Refer to "LINK SWITCH," page 4 for details.

22. Line 2 output jack (LINE OUT 2 (22))

Identical with LINE OUT 1 (21).

23. AUX 1/2 output jack (AUX OUT 1/2 (23))

This jack is connected to the effector input when an effect is to be applied to the sound source using AUX 1 (4) and AUX 2 (5) (or AUX 3 (7) and AUX 4 (8)).

Content of signals here will differ depending on setting of the LINK "AUX" SW (15). Refer to "LINK SWITCH," page 4 for details.

24. AUX 3/4 output jack (AUX OUT 3/4 (24))

Identical with AUX OUT 1/2 (23).

25. AUX return 1/2/3/4 jack (AUX RTN jack 1/2/3/4 (25))

Mainly, outputs from effectors connected to AUX OUT 1/2 (23) and AUX OUT 3/4 (24), are connected here. These jacks are wired in pairs with 1 and 2, 3 and 4 as follows:

- When plugs are connected to both 1 and 2 (3 and 4), the 1 (3) signal will be positioned to L, and the 2 (4) signal to R (For the stereo out type effector).

- When a plug is connected to either one jack, that signal will be positioned at center (For the monaural out type effector).

Output destinations (LINE OUT 1 (21) and LINE OUT 2 (22)) of the signal connected here will differ depending on setting of LINK "LINE" SW (14). Refer to "LINK SWITCH," page 4 for details.

26. Line 1 buss input jack (LINE BUSS IN 1 (26))

This jack is used mainly to cascade (*) Model 2016 with another external mixer (In this case, the external mixer master L/R outputs are connected here). Stereo sound sources and effector outputs can, of course, be connected here but the sound level cannot be adjusted by the Model 2016.

Output destinations (LINE OUT 1 (21) and LINE OUT 2 (22)) of the signal connected here will differ depending on setting of LINK "LINE" SW (14). Refer to "LINK SWITCH," page 4 for details.

(*) Cascade: Connecting method which allows operating a multiple number of mixers as a single unit. For example, Model 2016 (Setup for 16 IN 2 OUT 2 AUX) can be cascaded with an 8 IN 2 OUT 2 AUX mixer to make a 24 IN 2 OUT 2 AUX mixer.

27. Line 2 buss input jack (LINE BUSS IN 2 (27))

Identical with LINE BUSS IN 1 (26)

28. AUX 1/2 buss input jack (AUX BUSS IN 1/2 (28))

This jack is used mainly to cascade Model 2016 with another external mixer (In this case, either one of the external mixer's AUX output is connected here). Output destinations (AUX OUT 1/2 (23) and AUX OUT 3/4 (24)) of the signal connected here will differ depending on setting of LINK "AUX" SW (15). Refer to "LINK SWITCH," page 4 for details.

29. AUX 3/4 buss input jack (AUX BUSS IN 3/4 (29))

Identical with AUX BUSS IN 1/2 (28).

THE LINK SWITCH

The following will explain how the input and output changes in accordance to the setting of LINK "LINE" SW (14) and LINK "AUX" SW (15).

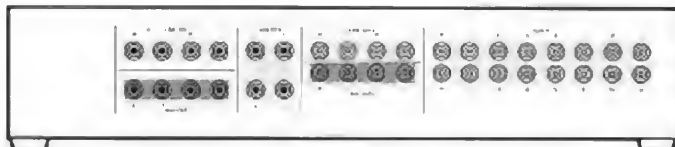
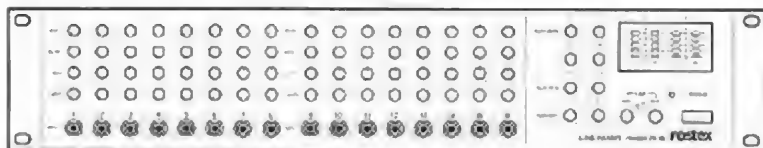
The following will be affected by the setting of both switches (Others will not be affected).

• Those which will be affected by LINK "LINE" SW (14)

INPUT 1~8 (1) (Or INPUT 1~8 (19))
INPUT 9~16 (6) (Or INPUT 9~6 (20))
LINE OUT 1 (21)
LINE OUT 2 (22)
AUX RTN jack 1/2/3/4 (25)
LINE BUSS IN 1 (26)
LINE BUSS IN 2 (27)

• Those which will be affected by LINK "AUX" SW (15)

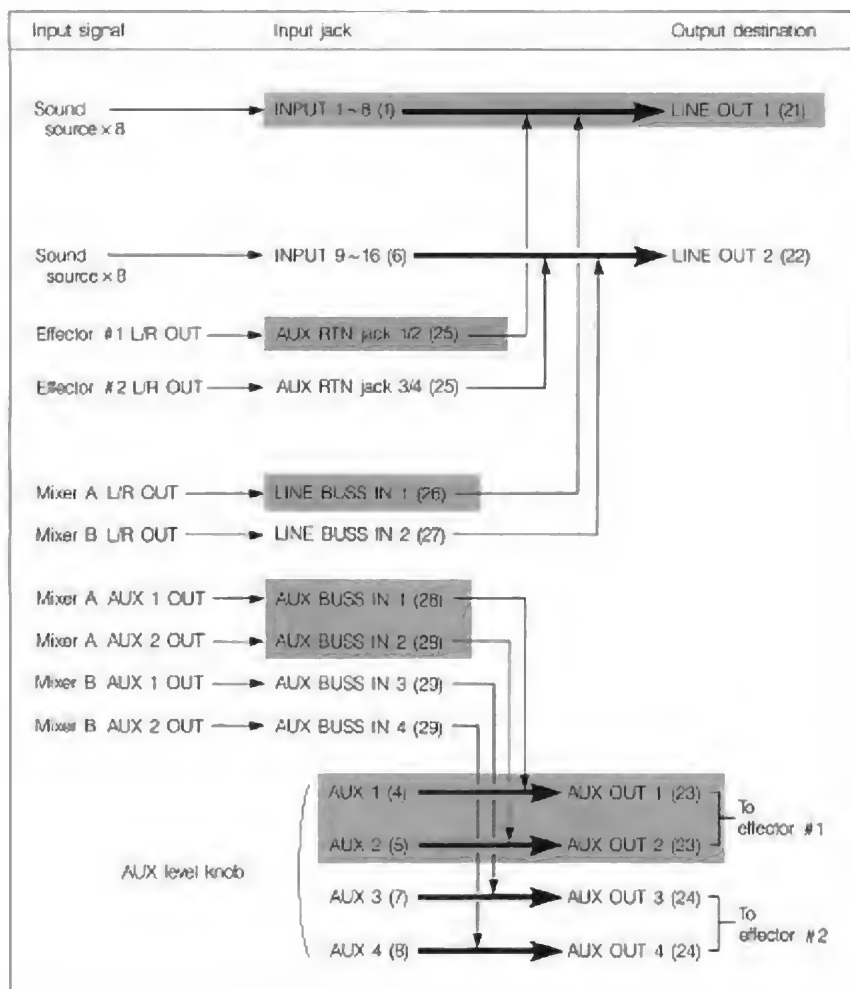
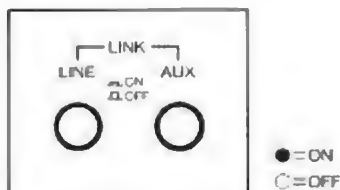
AUX OUT 1/2 (23)
AUX OUT 3/4 (24)
AUX BUSS IN 1/2 (28)
AUX BUSS IN 3/4 (29)



When LINK "LINE" SW (14)=OFF, LINK "AUX" SW (15)=OFF.

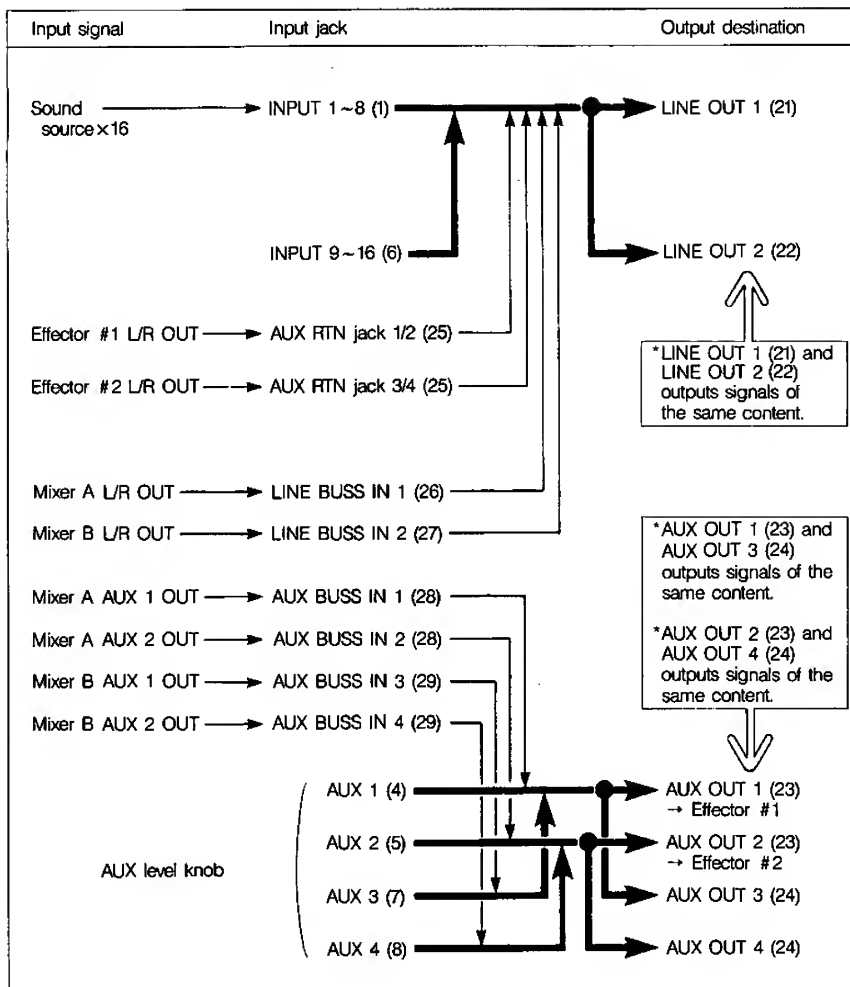
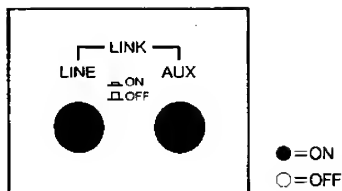
In this condition, Model 2016 will function as two sets of 8 IN 2 OUT mixers. Each will have two effects sends and one stereo return. In this case, signal flow in the Model 2016 will be as follows.

(The shaded portion represents one unit from among the two sets.)



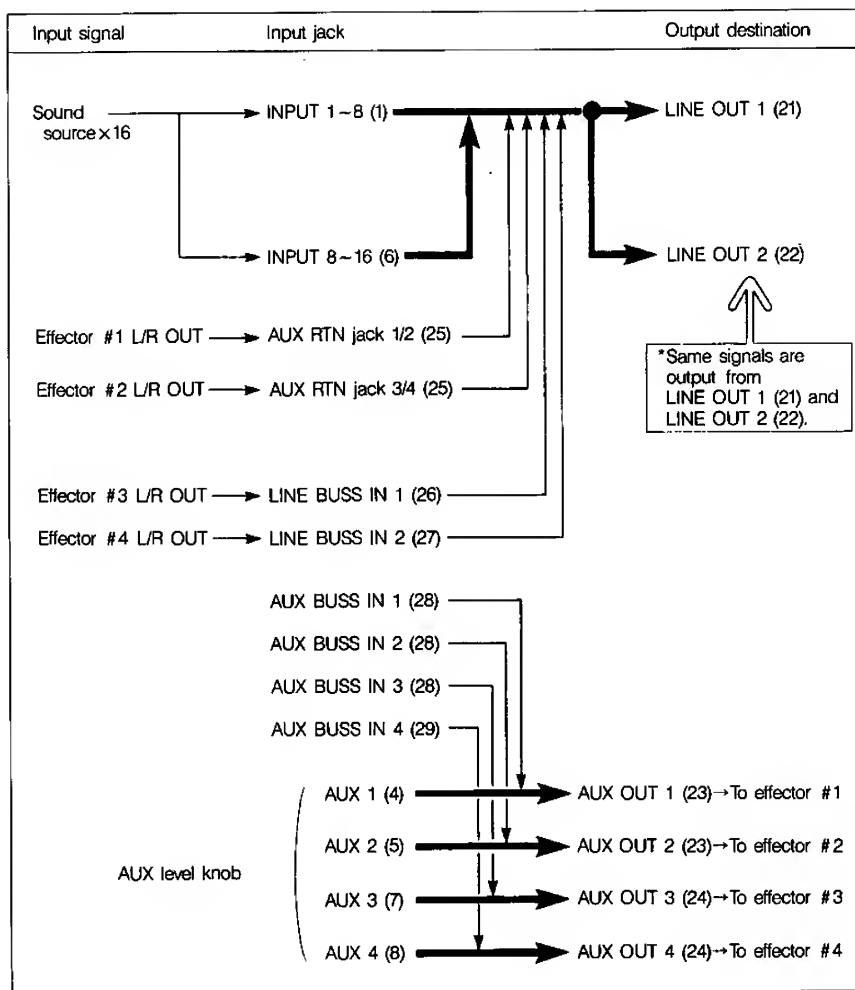
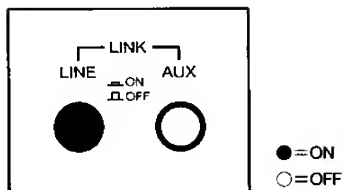
When LINK "LINE" SW (14)=ON, LINK "AUX" SW (15)=ON.

In this condition, Model 2016 functions as a 16 IN 2 OUT mixer. It also has two effects sends and two stereo returns (The same effect will be applied by AUX 1 (4) and AUX 3 (7), and AUX 2 (5) and AUX 4 (8)). In this case, signal flow in the Model 2016 will be as follows.



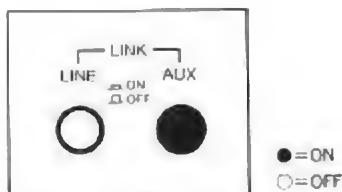
When LINK "LINE" SW (14)=ON, LINK "AUX" SW (15)=OFF:

In this condition, Model 2016 functions as a 16 IN 2 OUT mixer. It will have two effects sends which are effective in channels 1~8, two effects sends which are effective in channels 9~16, and in addition, two stereo returns. The signal flow in the Model 2016 will then be as follows.



When LINK "LINE" SW (14)=OFF, LINK "AUX" SW (15)=ON.

In this condition, Model 2016 functions as two sets of 8 IN 2 OUT mixers. This mode, however, is not generally used as AUX 1 (4) and AUX 3 (7), AUX 2 (5) and AUX 4 (6), respectively, will be combined into one unit.



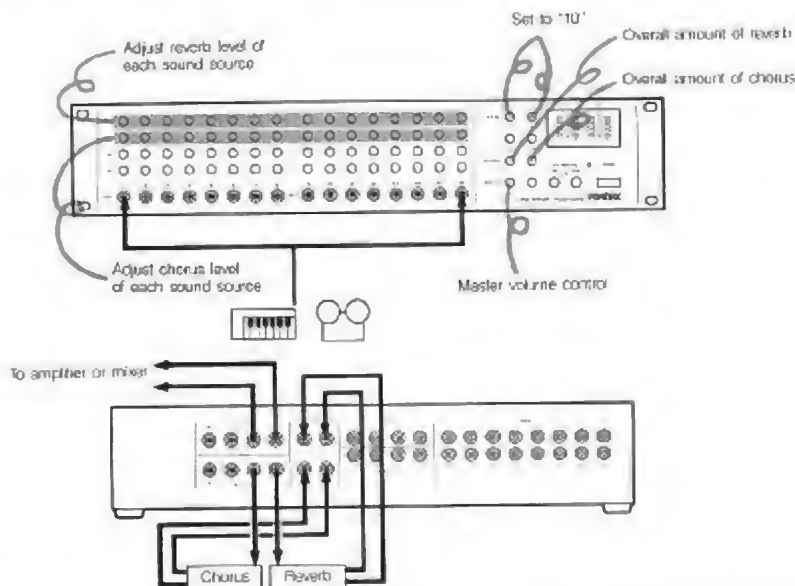
SECTION 3.

BASIC APPLICATION EXAMPLES

1. Application as a 16 IN mixer for electronic musical instruments/MTR

The most basic application example

Connect as shown below and set to LINK "LINE" SW (14)=ON and LINK "AUX" SW (15)=ON.



Set the balance of reverb to be applied to the sound sources of each channel by AUX 1 (4) and AUX 3 (7), and also the balance of the chorus by AUX 2 (5) and AUX 4 (8).

- Overall amount of reverb can be adjusted by AUX SEND 1 (11) (send level to reverb) or AUX RTN level 1-2 (13) (return level of reverb) but normally, AUX SEND 1 (11) is fixed at "10" and AUX RTN level 1-2 (13) adjusted as required. In this case, if the reverb input control pot

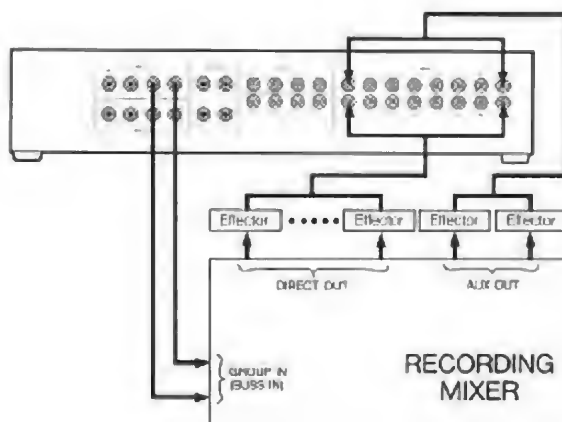
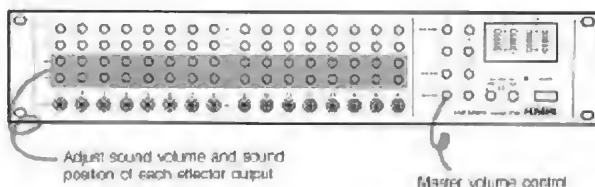
is at the reference level point and, at the same time, as level meter indicates overload, reduce the entire level by equally retarding AUX 1 (4) and AUX 3 (7) instead of retarding AUX SEND 1 (11).

- Overall amount of chorus, same as for reverb, is adjusted by AUX RTN level 3-4 (13). Also when the chorus level meter indicates overload, the entire level is reduced by equally retarding AUX 2 (5) and AUX 4 (8), same as for above.

2. Application as an exclusive effect return mixer

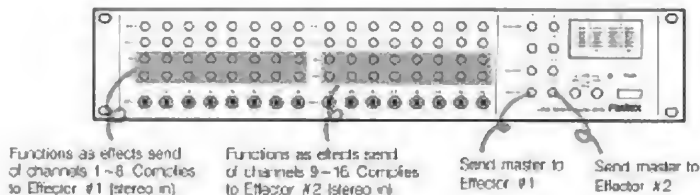
When a complicated effects return is attempted in a recording mixer, the effects return inputs will be quickly used up. That's when the Model 2016 can takeover.

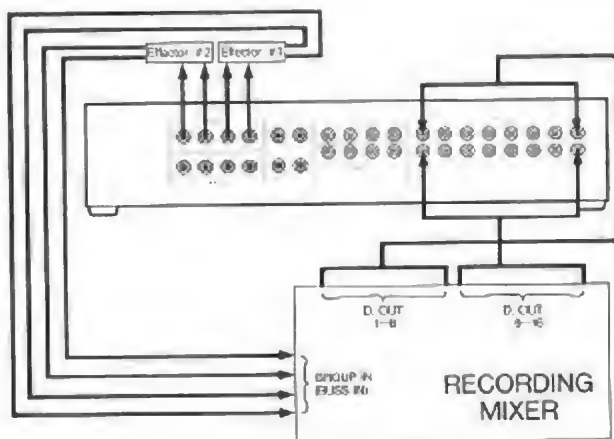
Connect as shown below and set to LINK "LINE" SW (14)=ON



3. Using the recording mixer D.OUT for additional AUX

Even when you are short of recording mixer AUX SENDS, if this mixer has a D.OUT (Direct Output), the number of AUX SENDS can be increased by employing Model 2016. Connect as shown below and setup to LINK "LINE" SW (14)=OFF





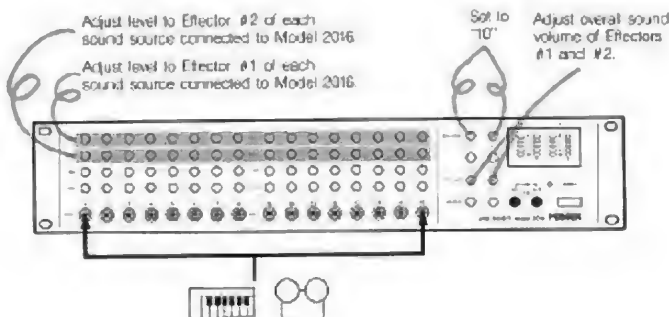
- In regards to channels 1-8 of the recording mixer, the Model 2016 GAIN 1-8 (2) will function as the AUX send control pots (complies to effector #1). Sound image also can be positioned by PAN 1-8 (3)
- In regards to channels 9-16 of the recording mixer, the Model 2016 GAIN 9-16 (2) will function as the AUX

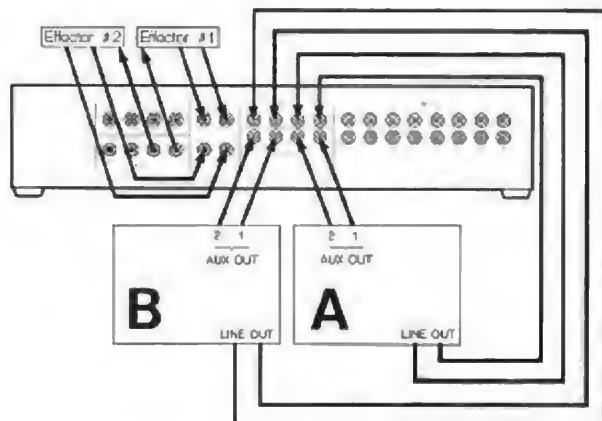
send control pots (complies to effector #2). Sound image also can be positioned by PAN 9-16 (3)

- The Model 2016 MASTER 1 (9)/MASTER 2 (10), respectively, will be the effects send master volume control to effector #1 and effector #2.

4. Cascading by using LINE BUSS/AUX BUSS

LINE BUSS IN 1 (26) and LINE BUSS IN 2 (27), AUX BUSS IN 1/2 (28) and AUX BUSS IN 3/4 (29) are used, mainly, for cascading with other mixers as shown below (In the examples below, both LINK "LINE" SW (14) and LINK "AUX" SW (15) are switched ON).





● Sound sources connected to another mixer A and B are mixed again with the sound source connected to the Model 2016 and output from LINE OUT 1 (21) (and from LINE OUT 2 (22)).

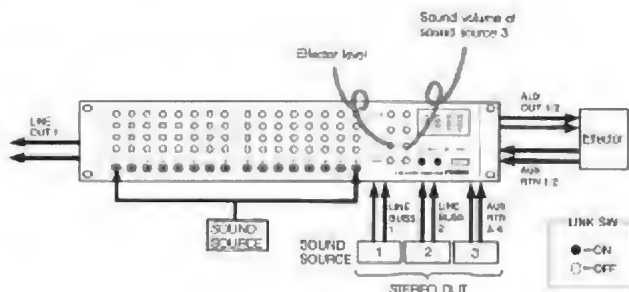
● When AUX 1 of each channel in the other mixers A and B are raised, effector #1 will be applied to the sound source connected to each. On the other hand, if AUX 2 of each channel is raised, effector #2 will be applied to these channels.

SECTION 4

CONNECTING EXAMPLES BY DIFFERENT MODES

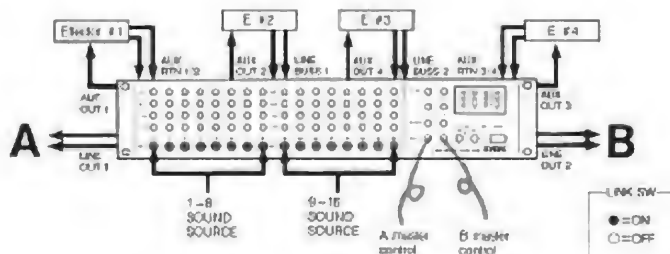
1. At "LINK ON" of LINE and AUX

USE AS A 16 INPUT+3 SUB INPUT (STEREO) AND CONNECT ONE STEREO IN/OUT TYPE EFFECTOR



2. At "LINK OFF" of LINE and AUX

USE AS 2 MIXER SETS OF 8 INPUT, 2 EFFECTS SEND/2 STEREO RETURN

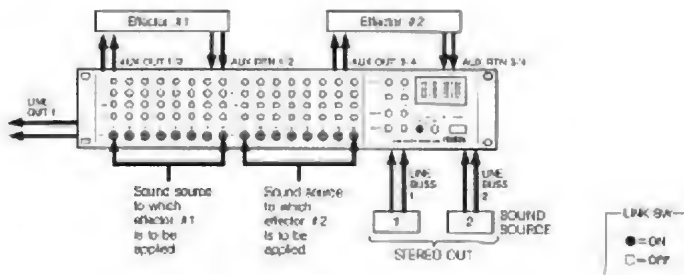


● Effects #1 and #2 can be applied to sound sources 1-8 (Effects sound together with the original sound is output to A.)

● Effects #3 and #4 can be applied to sound sources 9-16 (Effects sound together with the original sound is output to B.)

3. At "LINK ON" of LINE only

SOUND SOURCES TO BE CONNECTED TO CHANNELS 1-8 AND 9-16 ARE SEPARATELY ASSIGNED TO THE DESIRED EFFECTOR AND USED AS A 16 INPUT+2 SUB INPUT (STEREO)



SECTION 5. SPECIFICATIONS

| | | |
|-----------------------------|----------------------------|-------|
| ●INPUTS | | |
| Input (×16) | -10dBV | 10KΩ |
| AUX RTN (Stereo) × 2 | -20dBV | 10KΩ |
| Line Buss (×4) | -10dBV | 50KΩ |
| AUX Buss (×4) | -10dBV | 100KΩ |
| ●OUTPUTS | | |
| Line Out (Stereo) × 2 | -10dBV | 10KΩ |
| AUX Out (×4) | -10dBV | 10KΩ |
| ●FREQUENCY RESPONSE | | |
| | 20Hz~20KHz | |
| ●S/N RATIO | | |
| | 80dB | |
| ●DISTORTION | | |
| | 0.01% (100Hz~10KHz) | |
| ●CROSSTALK | | |
| | 65dB (1KHz) | |
| ●PHYSICAL DIMENSIONS | | |
| | 92(H) × 482(W) × 185(D) mm | |
| ●WEIGHT | | |
| | 3kg. | |
| ●POWER SUPPLY | | |
| | AC 120V/60Hz | |
| | AC 220V/50Hz | |
| | AC 240V/50Hz | |

SECTION 6. TROUBLE SHOOTING

●The connected sound source cannot be heard

Is the power switched ON? Is there a power amplifier connected between the Model 2016 and the speaker? Are MASTER 1 (9) and MASTER 2 (10) raised? Is LINK "LINE" SW (14) correctly selected (Should be ON for 16 inputs). Please check these again.

●Effects is not applied although each channel AUX level knobs are raised.

Are AUX SEND 1/2 (11) and AUX SEND 3/4 (12) raised? Are AUX RTN level 1-2/3-4 (13) raised? Check again whether the effector connection is not mistaken and selection of LINK "AUX" SW (15) is correct.

●Howling occurs when each channel AUX level knob is raised

Are you sure you are not feeding back the effector output to AUX BUSS IN 1/2 (28) or AUX BUSS IN 3/4 (29). Re-connect to AUX RTN jack 1/2/3/4 (25) (or LINE BUSS IN 1 (26) or LINE BUSS IN 2 (27)).

●Effector sound is distorting

Are you sure the effector input level is not overloading? If there is a gain selector at the effector input, it should be set to match the AUX output reference level of -10dBV. Also, if there is a gain selector at the effector output, it should be set to match the -20dBV reference level of the Model 2016 AUX RTN jack 1/2/3/4 (25) (It could distort if it is output at +4dBm).

If the effector input level overloads even though its reference level is matched with Model 2016, retard, not the AUX SEND 1/2 (11) (or AUX SEND 3/4 (12)), but the AUX level knobs equally for all channels.

Fostex

FOSTEX CORPORATION 3-2-35 Musashino, Akishima - shi., Tokyo, Japan 196

FOSTEX CORPORATION OF AMERICA 15431, Blackburn Ave., Norwalk, CA 90650, U.S.A.

© PRINTED IN JAPAN Oct. 1989 8288227000 TS